



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

ROBIN M. MILLER

Group Art Unit: 2674

Examiner: Kevin M. Nguyen

Serial No.: 09/090,071

Filed: June 3, 1998

For: HEADS-UP DISPLAY WITH IMPROVED CONTRAST

Attorney Docket No.: LUTA 0177 PUS

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SUPPLEMENTAL APPEAL BRIEF UNDER 37 C.F.R. § 1.192

Box AF
Commissioner for Patents
United States Patent and Trademark Office
Washington, D.C. 20231

Sir:

This is a brief in support of an appeal for the final rejection of claims 5-8 and 12 in the Office Action mailed on July 12, 2001, which Action finally rejected claims 5-9, 12, 13, 16 and 17, now claims 5-9, 12, 13 and 17, in view of an Advisory Action mailed September 6, 2001.

I. REAL PARTY IN INTEREST

The real party in interest is Lear Automotive Dearborn, Inc., a corporation organized and existing under the laws of the state of Delaware, and having a place of business at Southfield, Michigan, as set forth in the assignment recorded in the U.S. Patent and Trademark Office on July 9, 1999, at Reel 010061, Frame 0393.

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8

I hereby certify that this paper, including all enclosures referred to herein, is being deposited with the United States Postal Service as first-class mail, postage pre-paid, in an envelope addressed to: Box AF, Commissioner for Patents, United States Patent and Trademark Office, Washington, D.C. 20231 on:

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Frederick M. Ritchie
Name of Person Signing


Signature

II. RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences known to Appellant or Appellant's legal representative or the Assignee which will directly affect or be directly effected by or having a bearing on the boards decision in this appeal.

III. STATUS OF CLAIMS

Claims 5-9, 12, 13, and 17 are pending in this application (reproduced for reference in the attached Appendix), and are finally rejected. Only claims 5-8 and 12 are on appeal.

IV. STATUS OF AMENDMENTS

An amendment to claims 5, 9, 12, and 13 under 37 C.F.R. § 1.116 was filed subsequent to the final rejection. The Examiner indicated in the Advisory Action mailed September 6, 2001, that the proposed amendments would not be entered and the claims rejected are 5 - 9, 12, 13, and 17. In order to expedite the prosecution of this application, Appellant hereby authorizes the Examiner to cancel, without prejudice, claims 9, 13, and 17 by Examiner's Amendment.

V. SUMMARY OF THE INVENTION

Appellant's invention controls the contrast of a vehicle heads-up display to an environmental image in response to a signal developed of the environmental image approaching the moving vehicle. In some situations, there are environmental factors that affect the visibility or clarity of the image displayed. For example, as illustrated in the drawings, the visibility of the image displayed on the interior surface of the windshield may be affected, for instance, by environmental images produced by a gravel road 34 (Figure 3A) or elongated crops (Figure

3B), or by an approaching vehicle such as a large red truck 37 (Figure 2B). (*Specification*, page 2, lines 1-18.)

Appellant's claims include limitations for controlling the contrast of the heads-up display in response to the environmental image approaching the moving vehicle.

VI. ISSUES

The Examiner has finally rejected claims 5-8 and 12 under 35 U.S.C. § 103(a) as being unpatentable over Roberts (U.S. Patent No. 5,005,009, hereinafter "*Roberts*") in view of Tanaka et al. (U.S. Patent No. 6,081,254, hereinafter "*Tanaka*"). Accordingly, the sole issue to be considered on appeal is whether claims 5-8 and 12 are unpatentable under 35 U.S.C. § 103(a) by *Roberts* in view of *Tanaka*.

VII. GROUPING OF CLAIMS

System claims 5-8 and method claim 12 stand together.

VIII. ARGUMENT

A. Summary of the Examiner's Rejection

The Examiner states that the application is not in condition for allowance for the reasons cited in the Final Office Action. In the Advisory Action mailed September 6, 2001, the Examiner stated the proposed amendment will not be entered because they raise new issues that would require further consideration and/or search of the proposed "--colors and/or structural features--" amendment. Additionally:

. . . Roberts teaches a heads-up display system for multiple object viewing which includes the lights 13 at predetermined

positions relative to the windshield 10 (fig. 1, col. 5, lines 25-38), a rheostat 33 allows manual intensity control to suit the background lighting in contrast in the environment (see col. 7, lines 67-68 to col. 8, line 1), the and a camera (optical detector) (col. 6, line 11). Therefore, Roberts teaches all the claimed limitations of claim 5, except for a control coupled to the optical detector for controlling the contrast of the heads-up display in response to the environmental image approaching the moving vehicle. However, Tanaka et al. teaches an input device such as camera system (col. 11, line 38), 1E indicates a control for contrast and brightness, 2E a resistor, and 3E a connecting line to the detector (see fig. 14, col. 14, lines 38-42) to detect variations in the use environment of the imaging apparatus (col. 14, lines 66-67). It would have been obvious to provide a camera system taught by Tanaka in a heads-up display of Roberts' system because this would allow the driver to view easily the environment image approaching the moving vehicles. It would have been obvious to a person of ordinary skill in the art to recognize that Tanaka discloses a control coupled to the optical detector for controlling the contrast of the heads-up display in response to the environment image approaching the moving vehicle as claimed (by virtue of the operation described at col. 14, lines 37-67). (Underlining added.)

As to claims 6-7, Tanaka et al. teaches the keyboard 315 are connected to the controller 104 (col. 8, line 5) to control selects and appropriate heads-up display dependent upon said captured image and appropriate pattern for the heads-up display dependent upon said captured image as claimed.

As to claim 8, Tanaka et al. teaches a sensor 106 for detecting the displayed color on the display 103 (col. 6, lines 26-27).

B. Teachings of Roberts

Roberts discloses an instrument display apparatus for a vehicle which produces a reflected image of an instrument onto a windscreen that an operator may view while viewing out through the windscreen. (Col. 1, lines 10 - 15.) The instrument display or cluster which

is indicated in Figure 1 may be artificially illuminated by any light 13 which operates to augment, supplement or enhance the reflective ambient light 18. (Col. 5, lines 9 - 13.) The intensity of the artificial lighting 13 may be selectively controlled by a manually adjustable rheostat or potentiometer and/or automatically by a photosensor, which can detect ambient light lighting conditions 18 and thereafter increase or decrease the intensity of the artificial lighting if the ambient lighting conditions warrant. (Col. 5, lines 17 - 25.) A camera may be used to view the displayed image as if the image was viewed by the driver. (Col. 6, lines 3-15.) Simply stated, Roberts discloses a display that is produced by illuminating an instrument dial 14 and reflecting the image upon the windscreen. An enhancing or predetermined tint field 12 on the windscreen 10 operates as a filter to absorb predetermined wavelengths from the exterior environment or instrument dial 14 to diminish or eliminate secondary reflections or ghosts 16F so that the primary dial image is readable relative to the ambient light (col. 4, lines 37-53 and col. 6, lines 48-66). Only the intensity of light is projected to the tinted windscreen and varied in accordance with ambient light. *Roberts* does not control the contrast of the primary image displayed in response to the environmental image approaching the moving vehicle. The Examiner apparently concedes this point and adds *Tanaka*.

C. *Teachings of Tanaka*

Tanaka has nothing to do with a vehicle heads-up display system. *Tanaka* discloses a color correction system that can realize faithful color reproduction. (Col. 1, lines 5-10.) *Tanaka* faithfully corrects color changes by reproducing each color within a predetermined color reproduction range of a referenced color chip (Col. 7, lines 5-14.) The system operates by having a display signal inputted from a terminal converted by a color converter and then supplied to a display. The color converter ensures faithful color reproduction of the display by having a controller that controls a color conversion characteristic of the converter. (Col. 6, lines 3-7.) The conversion characteristic of the converter is corrected so as to make the color of the display and the referenced value output

of the color data storage chip equal to each other. (Col. 6, lines 26-35.) This happens because control means compares the image color detected by the detection means with the color data and controls an output signal of the conversion means so as to make them equal to each other. (Col. 3, lines 63-67.) Simply stated, *Tanaka* relates to an invention that analyzes a displayed image over a period of time with a sensor to determine whether the color of the displayed image is equal to a predetermined color. If the color is not equal to the desired color, a controller directs a converter to correct the color for faithful color reproduction of the desired color.

***D. Errors in the Examiner's Rejections and Why Claims
5-8 and 12 are Patentable Under 35 U.S.C. § 103***

The Examiner's Rejection

Claims 5-8 and 12 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Roberts* (5,005,009) in view of *Tanaka* (6,081,254).

The Appellant's Response

Firstly, *Tanaka* is non-analogous to a vehicle heads-up display system and seeks to match colors, whereas Appellant seeks to contrast displays. Secondly, *Roberts* does not provide any motivation for controlling the contrast of the dial image displayed in response to the environmental image approaching the moving vehicle.

With respect to the "vehicle heads-up display system" of Appellant's independent claims 5 and 12, the Examiner admits at page 2 of his Final Rejection that *Roberts* has every limitation except for:

"a control coupled to the optical detector for controlling the contrast of the heads-up display in response to the environmental image approaching the moving vehicle."

The Examiner offers *Tanaka* to teach this exception. But the problem with this secondary reference is that *Tanaka's* paint chip "image" is stationary – not "approaching a moving vehicle" and *Tanaka's* apparatus is for "faithful color, reproduction", not "contrast" as claimed. Thus, the modification of *Roberts* proposed by the Examiner impermissibly changes the principle of operation of *Tanaka*. See, MPEP § 2143.01. "The proposed modification cannot change the principle of operation of a reference."

Let's look at the problems faced by *Roberts* and *Tanaka*. *Roberts* wants a vehicle heads-up display which eliminates the "ghosting image" (col. 8, line 51). *Roberts* achieves this goal by using a film on the windshield which absorbs or attenuates wavelengths of light from the exterior environment to improve the contrast of his heads-up display relative to the lighting conditions surrounding the vehicle. *Tanaka*, on the other hand, wants a control means for color correction which detects the color of an image and compares it with the desired color data or color chip. Then *Tanaka* controls an output signal for the conversion means so as to make the color of the image equal to the desired color data (col. 3, lines 63-67).

In sum, *Roberts* wants contrast, *Tanaka* wants a match.

Let's check the Examiner's finding that "It would have been obvious to provide a camera system taught by *Tanaka* in a heads-up display of *Roberts'* system because this would allow the driver to view easily the environment image approaching the moving vehicles" (page 3 of Final Rejection mailed 07/12/01).

But *Roberts'* heads-up display is the reflected image of the various instruments or dials, etc., 14 on the enhancing tint film 12 (col. 6, lines 32-35). *Roberts* uses the tint field to substantially eliminate secondary reflections which can occur as troublesome "ghosts"

because of their intensity (col. 6, lines 48-55). So *Roberts* utilizes the intensities of artificial light in his control to produce a readable image in the tint film relative to ambient lighting (col. 6, lines 20-25). Such ambient light surrounds the moving vehicle and is stationary. The environment 19 of *Roberts*' Figure 1 is not the approaching environmental image to which the *Roberts* control responds. As aforesaid, the Examiner apparently concedes this when he states that *Roberts* lacks:

"a control coupled to the optical detector for controlling the contrast of the heads-up display in response to the environmental image approaching the moving vehicle".

Notwithstanding this concession, the Examiner still concludes that this shortcoming in *Roberts* is met by *Tanaka*.

But *Tanaka* is not concerned with environmental images or vehicles which move with respect to such images. *Tanaka* is comparing the color of some stationary part to a predetermined color data which is also stationary. *Tanaka's* object is a "faithful reproduction of the same color for the same color data" (col. 3, lines 20-21, and lines 63-67).

The combination of *Roberts* and *Tanaka* is incongruous. If the heads-up display teaching of *Roberts* is combined with the color matching teaching of *Tanaka*, the resultant vehicle heads-up display system would frustrate Appellant's claimed arrangement "for controlling the contrast of the heads-up display in response to the environmental image approaching the moving vehicle", to wit:

In Appellant's Figure 1, the tint portion 23 would be the same color as heads-up display 24, not "a color which contrasts to the color of the tint 23" (Appellant's specification page 3, line 22).

In Appellant's Figures 2A and B, the heads-up display 28 would be the same color as the background of the approaching environment, not "a different color" (Appellant's specification page 5, line 7, and page 5, line 14).

In Appellant's Figures 3A and B, the heads-up displays 36 and 44, respectively, would be selected with round circles like gravel 34 or elongated bars to look like elongated crops 42, not colors or patterns that contrast with gravel or crops (Appellant's specification page 5, line 16, to page 6, line 7).

Appellant believes that the Examiner's prior art citations do not teach controlling contrast of the heads-up display "in response to the environmental image captured" (claim 12) or "in response to the environmental image approaching the moving vehicle" (claims 5-8). Appellant captures an "image" and controls in response to the image whereas *Roberts*, as indicated above in the *Teachings of Roberts*, merely responds to the ambient light 18 of the sun, not the "image" of the environment 19.

Appellant's invention controls the contrast of a vehicle heads-up display in response to an image of the exterior environment approaching the moving vehicle. The color and patterns or structural features of the displayed image are controlled so that the image displayed is in contrast both in color and/or pattern versus the external environment.

Moreover, there is no motivation to combine *Roberts* and *Tanaka*.

The error in the Examiner's reasoning is pointed out when he relies *inter alia* upon *Roberts* to teach a heads-up display system for moving vehicles as defined by all the limitations of claim 5 except for:

a control coupled to the optical detector for controlling the contrast of the heads-up display in response to the environmental image approaching the moving vehicle.

(Underlining added.)

and then relies on *Tanaka* to teach this exception.

The proposed combination of *Roberts* and *Tanaka* would change the principle of operation of *Tanaka* to provide the exception the Examiner needs for *Roberts*. True, *Roberts* and Appellant both want a heads-up display which is easy to see. *Roberts* achieves this by adding a film to the windshield to absorb the ghosts and turning up the intensity of some artificial light on the heads-up display. Appellant achieves this by capturing the image of the approaching image and making the heads-up display contrast or look different from the image captured. *Tanaka*, however, does not want his colors to look different. Therefore, it would require a change or redesign in the basic principle under which the *Tanaka* system was designed to operate.

Once Appellant had taught how this could be done, the redesign may, by hindsight, seem to be obvious to one having ordinary skills in the automotive arts. However, when viewed as of the time Appellant's invention was made and without the benefit of Appellant's disclosure, there is nothing in the art of record which suggests Appellant's vehicle heads-up display system as claimed. See *In re Ratti*, 123 USPQ 349, 352 (CCPA, 1959).

***E. Specific Limitations in the Rejected Claims
 Which Are Not Described in the Prior Art***

In regard to claims 5-8, Appellant respectfully contends *Roberts* lacks the problem of "an arrangement for controlling the contrast of the heads-up display to an environmental image approaching the moving vehicle" and, without the problem, neither *Roberts* nor *Tanaka* has a need for, nor does either suggest "an optical detector for capturing the image of the environment approaching the vehicle" in combination with "a control coupled to the optical detector for controlling the contrast of the heads-up display in response to the environmental image approaching the moving vehicle."

Likewise, in regard to claim 12, Appellant respectfully contends *Roberts* does not teach "controlling the contrast of the heads-up display to an environmental image approaching the moving vehicle" wherein the step of controlling includes the step of "capturing the image of the environment approaching the moving vehicle and controlling the contrast of the heads-up display in response to the environmental image captured."

Claims 6 and 8 are believed nonobvious based on the limitations of claim 1 from which these claim depend.

Claim 7 is believed to be nonobvious based on the limitations of claim 1 and to the additional limitation "wherein the control selects an appropriate pattern for the heads-up display dependent upon said captured image."

F. The Examiner's Citations

In response to Appellant's hindsight argument, the Examiner cites *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988), and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). Neither supports the Examiner's obviousness rejection.

In *Fine*, at 1074, one of the references (Eads) in the Examiner's combination of art warned against rather than taught *Fine's* invention. The Court, at 1075, reversed the Examiner's rejection, noting "the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher".

Tanaka, like Eads, warns at column 2, lines 35 et seq., of "deterioration of color reproduction relating to color matching. . ." where appellant's invention seeks to mismatch a heads-up display from an approaching image rather than matching them. Thus, *Tanaka's* control for contrast and brightness is taught for detecting variations in color so that

the examined color will not contrast and can be corrected to match the desired color (col. 14, lines 10, 22, 31).

In *Jones*, at 351, the Examiner's obviousness rejection was reversed noting that "Conspicuously missing from this record is any *evidence*, other than the PTO's speculation (if it be called evidence) that one of ordinary skill in the --- art would have been motivated to make the modifications of the prior art --- necessary to arrive at the claimed (invention)."

Both of the Examiner's cases support appellant's position on hindsight reasoning.

IX. CONCLUSION

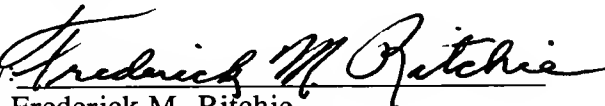
Appellant urges the Board of Patent Appeals and Interferences to find that claims 5-8 and 12 are nonobvious over *Roberts* and *Tanaka*, and are accordingly allowable.

No fee as applicable under the provisions of 37 C.F.R. § 1.17(c) is enclosed. With reference to M.P.E.P. § 1208.02, Appellant understands that "whether Appellant elects to continue prosecution or to request reinstatement of the Appeal, if prosecution was reopened prior to a Decision on the Merits by the Board of Patent Appeals and Interferences, the fee paid for the Appeal Brief . . . will be applied to a later Appeal on the same application" (modifications added). As such, Appellant has not included any fees with this paper, however,

if Appellant is incorrect in the calculation of fees due in connection with this filing, the Examiner is authorized to charge any additional deficiencies to our Deposit Account No. 02-3978. A duplicate of this Brief is enclosed for this purpose.

Respectfully submitted,

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Enclosure - Appendix



X. APPENDIX - CLAIMS ON APPEAL

5. A vehicle heads-up display system comprising:

a source for providing a heads-up display onto a windshield of a moving vehicle;

and

an arrangement for controlling the contrast of the heads-up display to an environmental image approaching the moving vehicle wherein the arrangement includes an optical detector for capturing the image of the environment approaching the vehicle and a control coupled to the optical detector for controlling the contrast of the heads-up display in response to the environmental image approaching the moving vehicle.

6. A heads-up display as recited in Claim 5, wherein the control selects an appropriate heads-up display dependent upon said captured image.

7. A heads-up display as recited in Claim 6, wherein the control selects an appropriate pattern for the heads-up display dependent upon said captured image.

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8. A heads-up display as recited in Claim 6, wherein the control selects an appropriate color for the heads-up display dependent upon said captured image.

9. (cancellation authorized) A vehicle heads-up display system comprising:
a source for providing a heads-up display onto a windshield of a moving vehicle;

and

an arrangement for controlling the contrast of the heads-up display to an environmental image approaching the moving vehicle wherein an area on the windshield is provided with a surface treatment, and wherein the system further comprises a light source adjacent the surface treated area for directing a light onto the surface treated area to provide a glow and said heads-up display being directed onto said surface treated area.

12. A method of providing a heads-up display comprising the steps of:

- (a) providing a system for directing a heads-up display onto the windshield of a moving vehicle;
- (b) directing a heads-up display onto the vehicle windshield; and
- (c) controlling the contrast of the heads-up display to an environmental image approaching the moving vehicle wherein the step of controlling includes the step of capturing the image of the environment approaching the moving vehicle and controlling the contrast of the heads-up display in response to the environmental image captured.

~~13. (cancellation authorized) A method of providing a heads-up display comprising the steps of:~~

- ~~(a) providing a system for directing a heads-up display onto the vehicle windshield;~~
- ~~(b) directing a heads-up display onto the windshield of a moving vehicle;~~
- ~~and~~
- ~~(c) arranging the heads-up display to be in contrast to an environmental image approaching the vehicle by surface treating a portion of the windshield and directing light onto the surface treated portion to provide a back glow, whereby the heads-up display is directed onto the back glow.~~

~~17. (cancellation-authorized) The vehicle heads-up display system of claim 9, wherein the surface treated area further includes a roughened portion of the windshield.~~